REMARKS

A Restriction Requirement was mailed in the present case on May 5, 2005. The Examiner required restriction between Claims 1-4 in Class 264, subclass 209.2 and Claims 5-6 in Class 277, subclass 652. Applicant elected to prosecute Claims 1-4 drawn to a method of installing a gasket, classified in Class 264, subclass 209.2, without traverse and without prejudice toward filing a divisional application on the non-elected claims.

The present invention deals with the field of plastic pipe belling and manufacture. Pipes formed from thermoplastic materials including polyethylene and PVC are used in a variety of industries but are particularly useful in municipal water and sewage systems. In forming a joint between thermoplastic sections of pipe, the spigot or male pipe end is inserted within the female or socket pipe end. An annular, elastomeric ring or gasket is typically seated within a groove formed in the socket end of the thermoplastic pipe to perform the sealing function at the pipe joint.

Typical plastic pipe manufacture involves the "belling" of the female pipe member according to what is commonly referred to in the industry as the "Rieber" technique, developed in the early 1970's. The Rieber process is described on pages 8-10 of Applicant's Specification. In the Rieber process, an elastomeric gasket was installed within an internal groove in the socket end of the female pipe as the female or belled end was simultaneously being formed. Rather than utilizing a preformed groove, the Rieber process provided a prestressed and anchored elastomeric gasket on a forming mandrel during the belling operation. The heated plastic pipe end was then forced over the forming mandrel and gasket, causing an expansion or "belling" of the female pipe end. Because the gasket was installed simultaneously with the formation of the belled pipe end, a rigid, embedded reinforcing ring could be supplied as a part of the gasket. Because the pipe groove was, in a sense, formed around the gasket with its embedded reinforcing ring, the gasket was securely retained in position and did not tend to twist or flip or otherwise allow impurities to enter the sealing zones of the joint, thus increasing the reliability of the joint and decreasing the risk of leaks or possible failure due to abrasion. The Rieber process is described in the following issued United States patents, among others: U.S. Pat. Nos. 4,120,521; 4,061,459; 4,030,872; 3,965,715; 3,929,958; 3,887,992; 3,884,612; and 3,776,682.

One problem which can occur in the Rieber manufacturing process is that frictional resistance between the gasket and mandrel or pipe can hamper the forming operation. Also, in field installations of pipe joints, particularly those involving larger diameter pipe, the insertion force

needed to install the male spigot end within the mating socket end could, on some occasions, cause the gasket to be distorted or displaced.

One attempted solution, both in the manufacturing plant and in the field, was to utilize a liquid lubricant to reduce frictional forces. The lubricant could be applied during formation of the pipe joint and at the point of assembly of the pipe joint in the field, as by brushing, spraying or dipping the gasket in a suitable liquid or viscous lubricant compound. This approach was messy and inconsistent and often proved to be unsatisfactory. The lubricating effect was not permanent or even semi-permanent.

Another problem encountered with plastic pipe systems of the type under consideration involves the general environment in which these pipe systems are used. Pipelines of the type under consideration are often used as municipal water and sewer lines. The gaskets which are used as the sealing elements in such systems are subjected to attack by any of a number of environmental contaminants. These include, oil and hydrocarbons, sunlight, ozone, chemicals, etc. It would therefore be advantageous to provide a gasket coating which not only improved the frictional resistance characteristics of the gasket, but also helped to provide improved chemical resistance, environmental resistance and abrasion resistance. If the right coating could be found, a sealing gasket could be utilized in these type piping systems which was itself formed of a less expensive grade of rubber, since the coating would provide a protective outer layer for the inner gasket material. Ideally, the coating would provide a gasket with greater oil, chemical and environmental resistance than nitrile rubber at a fraction of the cost. One final advantage of such a coating is that it would provide the option of color coding gaskets by type or application. Thus, a water line gasket would be a different color than a sewer line gasket, etc.

Applicant's invention is the discovery that a particular class of coatings provides many of the above advantages without adding a undue cost burden on the gasket/pipe manufacturing process. Applicant has found that a class of polyurethane synthetic coatings can be utilized in coating applications of the type under consideration. One preferred class of polyurethane materials is sold commercially by Lord Chemical Products of Erie, PA, as the "Lord Elastomeric Coatings"™. These elastomeric coatings have been found to offer excellent adhesion properties and environmental resistance as well as providing resistance to deleterious fluids and resistance to ozone. The coatings can enable a less expensive rubber to be used as the base gasket material with characteristics equivalent to more expensive materials. The coatings can be colored as well.

One particularly preferred coating is manufactured by Lord Chemical Products of Erie, PA, as the CHEMGLAZE® polyurethane coating. This is a high performance coating that will withstand severe temperature, chemical attack and abrasion. The anti-friction and chemical resistant coating is conveniently applied by spraying on at least selected external surfaces of the gasket followed by a drying period as recommended by the manufacturer.

In the first part of the present Office Action, the Examiner has raised a number of double patenting issues. The Examiner has initially rejected Applicant's Claims 1-4 under the judicially created doctrine of obviousness-type double patenting based upon Claims 1-10 of copending application no. 10/776,842, in view of Doolittle (3,827,660). Claims 1-4 are also rejected under the judicially created doctrine of obviousness-type double patenting based upon Claims1-12 of U.S. Patent No. 6,328,309, in view of Doolittle. Finally, Claims 1-4 are rejected on the same grounds based upon Claims 1-10 of U.S. Patent No. 6,676,886, in view of Corbett, Jr. (U.S. Patent No. 6,328,309) and further in view of Doolittle. Applicant is filing the appropriate Terminal Disclaimers to moot the double patenting grounds of rejection.

The Examiner has also rejected Applicant's claims substantively under 35 U.S.C. Section103(a) as being "obvious" over the combination of Corbett, Jr. (6,328,309) in view of Doolittle (3,827,660). Corbett, Jr. is cited to show the basic pipe belling manufacturing operation and also the use of a Teflon® coating which reduces frictional resistance during the pipe belling operation. The Examiner argues that Doolittle makes Applicant's invention "obvious" since Doolittle teaches that both Teflon® and polyurethane coatings are used as anti-friction coatings.

Applicant's Claims 1-4 are further rejected by the Examiner under 35 U.S.C. Section 103(a) based upon Corbett, Jr. (6,676,886) in view of Corbett, Jr. (6,328,309) and further in view of Doolittle, as discussed above. The second Corbett, Jr. reference (6,676,886) is apparently cited to show further details of the pipe belling manufacturing process, such as the use of a back up collar, and the like. The Examiner admits that the '886 reference fails to teach a gasket coating and that the coating taught in the '309 patent is a Teflon® coating, rather than a polyurethane coating. However, the Examiner argues that Doolittle makes Applicant's invention "obvious" since he teaches that "both Teflon® and polyurethane coatings are used as anti-friction coatings."

The Examiner has nowhere addressed one critical aspect of Applicant's claimed invention, namely that of providing a gasket coating which, in addition to providing improved frictional properties, also provides oil, chemical and environmental protection. Applicant originally referred to this in the

claim language as an "anti-corrosion" property. Applicant has amended remaining independent Claim 1 to describe the second required property of the coating as being "able to withstand temperature, chemical attack and abrasion." In other words, these properties describe the characteristics of the coating which protect the gasket from attack by various environmental influences. Support for the amended claim language can be found at page 8, lines 12-14 of the Specification as originally filed.

Applicant has identified a preferred class of such coatings in the Specification as originally filed. These coatings are "synthetic polymers, preferably thermoplastic, most preferably a polyurethane high performance coating that will withstand severe temperature, chemical attack and abrasion." A particularly preferred coating is manufactured by Lord Chemical Products of Erie, PA, as the CHEMGLAZE® polyurethane coating. Claim 1 does not include the tradename or chemical specifications of the preferred product. Dependent Claim 2 does include the specific published chemical specifications. Applicant would submit that a claim should be allowable commensurate with the scope of the invention without requiring a tradename or chemical specification in the broadest claim of the case if it is clear what the described coating is from reading the plain text of the Specification.

The Doolittle patent deals with a totally different field of use than Applicant's sewer and water line gaskets for plastic pipe. Doolittle deals with an aircraft arresting apparatus which can be stretched across a runway to arrest the forward momentum of a landing aircraft. Applicant would respectfully submit, that while a certain type coating might work in the field of use of Doolittle, it might be totally unsuitable for a totally different field of use. Doolittle is concerned with the frictional characteristic of a landing net catching an aircraft without damaging sensitive parts of the aircraft (Col. 4, lines 20-23). Applicant is concerned with the frictional forces in a pipe belling operation where a hot plastic pipe end is being forced over a forming mandrel on which is mounted a sealing gasket. The environments are totally different and the pressures, temperatures, stresses, etc., are totally different.

Secondly, the environmental factors other than resistance affecting Doolittle also differ from those affecting Applicant's goods. Doolittle's nets may be used temporarily (such as in an emergency landing) and then stored away. In such case, there may be very little detrimental effects in the immediate environment. Even if they are continuously left in place, they are mostly subjected to sunlight as a "corrosive" factor. Applicant's sewer gaskets, for example, may subject the sealing gasket to any number of corrosive and detrimental environmental agents. These include, for

example, hydrogen sulfide gas in sewer environments. Applicant's gaskets also come into contact with oils and solvents, both during the manufacturing operation and later during field make-up of the pipe joint.

Applicant's independent Claim 1 will be read in light of the Specification in any later interpretation of the scope of the claim. Applicant has described a suitable gasket coating which will accomplish the stated objectives of the invention. Accordingly, Applicant should be allowed a claim of commensurate scope.

Reconsideration of Claims 1-4 is requested in view of the above arguments and amendments.

Respectfully submitted,

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